U.S. FISH AND WILDLIFE SERVICE
SPECIES ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM

SCIENTIFIC NAME: *Phyllostegia floribunda*

COMMON NAME: No common name

LEAD REGION: Region 1

INFORMATION CURRENT AS OF: April 2010

STATUS/ACTION

___ Species assessment - determined we do not have sufficient information on file to support a proposal to list the species and, therefore, it was not elevated to Candidate status
___ New candidate
_X__ Continuing candidate
___ Non-petitioned
_X__ Petitioned - Date petition received: May 11, 2004
_ 90-day positive - FR date:
X 12-month warranted but precluded - FR date: May 11, 2005
N Did the petition request a reclassification of a listed species?

FOR PETITIONED CANDIDATE SPECIES:
a. Is listing warranted (if yes, see summary of threats below)? Yes
b. To date, has publication of a proposal to list been precluded by other higher priority listing actions? Yes
c. If the answer to a. and b. is "yes", provide an explanation of why the action is precluded.
Higher priority listing actions, including court-approved settlements, court-ordered and statutory deadlines for petition findings and listing determinations, emergency listing determinations, and responses to litigation, continue to preclude the proposed and final listing rules for the species. We continue to monitor populations and will change its status or implement an emergency listing if necessary. The "Progress on Revising the Lists" section of the current CNOR (*http://endangered.fws.gov/*) provides information on listing actions taken during the last 12 months.

_N_ Listing priority change
Former LP: ___
New LP: __
Date when the species first became a Candidate (as currently defined):
October 25, 1999
___ Candidate removal: Former LP: ___
___ A – Taxon is more abundant or widespread than previously believed or not subject to the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status.

___U – Taxon not subject to the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status due, in part or totally, to conservation efforts that remove or reduce the threats to the species.
___ F – Range is no longer a U.S. territory.
___ I – Insufficient information exists on biological vulnerability and threats to support listing.
___ M – Taxon mistakenly included in past notice of review.
___ N – Taxon does not meet the Act's definition of "species."
___ X – Taxon believed to be extinct.

ANIMAL/PLANT GROUP AND FAMILY: Flowering plants, Lamiaceae (Mint family)

HISTORICAL STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: Hawaii, island of Hawaii

CURRENT STATES/COUNTIES/TERRITORIES/COUNTRIES OF OCCURRENCE: Hawaii, island of Hawaii

LAND OWNERSHIP: *Phyllostegia floribunda* occurs on private, State, and Federal lands. There are very small populations found at Kipahoehoe and Puu Makaala Natural Area Reserves; the Kona Hema Preserve; upper Waiakea Forest Reserve, and Hawaii Volcanoes National Park. Outplanted populations are on private land managed by The Nature Conservancy at Honomalino in south Kona, and within Hawaii Volcanoes National Park in the Olaa Koa Unit and Small Tract.

LEAD REGION CONTACT: Linda Belluomini, (503) 231-6283, linda_belluomini @fws.gov

LEAD FIELD OFFICE CONTACT: Pacific Islands Fish and Wildlife Office, Christa Russell, 808-792-9400, christa_russell@fws.gov

BIOLOGICAL INFORMATION

Species Description
Phyllostegia floribunda is an erect subshrub with stems 12 to 35 inches (in) (3 to 9 decimeters) long and covered with coarse hairs. Leaves are pale on the lower surface, membranous, somewhat flaccid and ovate in shape with crenate margins. Leaves are moderately covered with coarse hairs and sparsely dotted with glands. Flowers are arranged two per false whorl on short leafless lateral branches arising in the axils or below the lowermost leaves, forming racemose inflorescences. They are hirsute throughout, with each flower subtended by an obovate, ciliate bract. The corolla is maroon to red with a white base and a straight tube. Nutlets are 0.12 to 0.14 in (3 to 3.5 millimeters) long (Wagner *et al*. 1999, p. 815).

Taxonomy
Phyllostegia floribunda was originally described by Bentham (1835). This species is recognized as a distinct taxon in the *Manual of the Flowering Plants of Hawaii* (Wagner *et al*. 1999, p. 815),

the most recently accepted Hawaiian plant taxonomy.

Habitat/Life History
Typical habitat is mesic to wet forest at elevations from 1,400 to 3,700 ft (430 to 1,130 m) (Wagner *et al*. 1999, p. 815; HBMP 2008).

Historical Range/Distribution
Historically, this species was wide ranging on the island of Hawaii, known from Kona, Kau District, Pahala, Kohala, Kilauea, and Laupahoehoe (HBMP 2008).

Current Range/Distribution
Currently, *Phyllostegia floribunda* is known from the Kipahoehoe, Puu Makaala, and Kahaualea Natural Area Reserves; the Kona Hema Preserve; the upper Waiakea Forest Reserve, and Hawaii Volcanoes National Park, on the island of Hawaii.

Population Estimates/Status
This species is currently known from 7 populations totaling fewer than 25 wild individuals on State, Federal, and private lands (HBMP 2008; K. Bio, Plant Extinction Prevention Program, pers. comm. 2008; N. Agorastos, DOFAW, pers. comm. 2010). A previously reported population from Hawaii Volcanoes National Park's Olaa Tract can no longer be relocated (L. Pratt, U.S. Geological Survey, pers. comm. 2008). There are four outplanted populations; one at the Olaa Koa Unit, and one at Small Tract (totaling more than 50 individuals, with more outplanted in 2008), in Hawaii Volcanoes National Park. The third population is at Kona Hema, with 20 individuals (L. Hillis, The Nature Conservancy (TNC), pers. comm. 2007). An additional 100 individuals have been outplanted into a fenced enclosure at the State's Waiakea Forest Reserve (FR) (M. Bruegmann, Service, in litt. 2006).

THREATS

A. The present or threatened destruction, modification, or curtailment of its habitat or range. *Phyllostegia floribunda* is threatened by feral pigs (*Sus scrofa*) that degrade and destroy habitat (HBMP 2008). Evidence of the activities of feral pigs has been reported from the Puu Makaala and Laupahoehoe NARs and the Olaa and Upper Waiakea FRs (HBMP 2008; N. Agorastos, DOFAW, pers. comm. 2007; L. Perry, pers. comm. 2007; Plant Extinction Prevention (PEP) Program 2008, pp. 106-107).

Pigs of Asian ancestry were introduced to Hawaii by the Polynesians, and the Eurasian type was introduced to Hawaii by Cook in 1778, with many other introductions thereafter (Tomich 1986). Some pigs raised as food escaped into the forests of Hawaii, Kauai, Oahu, Molokai, Maui, and Niihau, formed herds, and are now managed as a game animal by the State to optimize hunting opportunities (Tomich 1986; State of Hawaii 2001). In a study conducted in the 1980s on feral pig populations in the Kipahulu Valley on Maui, the deleterious effects of feral pig rooting on native forest ecosystems was documented (Diong 1982). Kipahulu Valley consists of a diverse composition of native ecosystems, from near sea level to alpine, and forest types ranging from mesic to wet, *Acacia koa* (koa) and *Metrosideros polymorpha* (ohia). Rooting by feral pigs was observed to be related to the search for earthworms, with rooting depths averaging 8 in (20 cm),

greatly disrupting the leaf litter and topsoil layers, and contributing to erosion and changes in ground topography. The feeding habits of pigs were observed to create seed beds, enabling the establishment and spread of weedy species such as strawberry guava (*Psidium cattleianum*). The study concluded that all aspects of the food habits of pigs are damaging to the structure and function of the Hawaiian forest ecosystem (Diong 1982).

Hawaiian ecosystems, having evolved without disturbance of hoofed mammals, are susceptible to large-scale disturbance by pigs, goats, and other introduced ungulates (Loope *et al*. 1991). Because of demonstrated habitat modifications by feral pigs such as destruction of native plants, disruption of topsoil leading to erosion, and establishment and spread of nonnative plants, the Service believes feral pigs are threats to *Phyllostegia floribunda*.

B. Overutilization for commercial, recreational, scientific, or educational purposes.
None known.

C. Disease or predation.
Predation by feral pigs is a potential threat to *Phyllostegia floribunda* because evidence of pig activities in four locations (Puu Makaala and Laupahoehoe NARs, and Upper Waiakea and Olaa FRs) of this species has been reported (HBMP 2008; N. Agorastos, DOFAW, pers. comm. 2007; L. Perry, pers. comm. 2007). Browsing by ungulates has been observed on many native plant species, including common and rare or endangered species (Cuddihy and Stone 1990; Loope *et al*. 1991). Because Hawaii's native plants evolved without any browsing or grazing mammals present, many lost natural defenses to such impacts (Carlquist 1980). Pigs are omnivorous in their diet. In the study described above on feral pig populations in the Kipahulu Valley, pigs were observed browsing on young shoots, leaves and fronds of a wide variety of plants, of which over 85 percent were endemic species (Diong 1982). A stomach content analysis showed that the pigs' food sources consisted of native plants, 60 percent of which were *Cibotium* spp. (tree ferns), alternating with *Psidium cattleianum* when it was available. Pigs were observed to fell plants and remove the bark of *Clermontia*, *Cibotium*, *Coprosma*, *Psychotria*, and *Hedyotis* species (herbaceous and woody plants), with larger trees killed over a few months of repeated feeding. Therefore, even though we have no evidence of direct browsing for *Phyllostegia floribunda*, it is likely that feral pigs impact this species.

D. The inadequacy of existing regulatory mechanisms.
Phyllostegia floribunda currently receives no protection under Hawaii's endangered species law (HRS, Sect. 195-D) or the Federal Endangered Species Act (16 U.S.C. §§1531-1544).

Pigs are managed in Hawaii as game animals, but many herds populate inaccessible areas where hunting is difficult, if not impossible, and therefore has little effect on their numbers (Hawaii Heritage Program 1990). Pig hunting is allowed year-round, or during certain months, depending on the area (Hawaii Department of Land and Natural Resources 1999, 2003); however, public hunting does not adequately control this threat to native plant species.

E. Other natural or manmade factors affecting its continued existence.
Phyllostegia floribunda is threatened by alien plant species that degrade and destroy habitat and outcompete native plants (HBMP 2008). The nonnative plants that are reported to be the greatest

threats to *P. floribunda* are *Psidium cattleianum* (strawberry guava), *Setaria palmifolia* (palm grass), *Rubus argutus* (prickly Florida blackberry), *Rubus ellipticus* (yellow Himalayan raspberry), *Passiflora edulis* (passionfruit), and *Hedychium gardnerianum* (kahili ginger) at the Olaa FR population; *Rubus ellipticus, Psidium cattleianum, Setaria palmifolia, Clidemia hirta*, and *Hedychium gardnerianum* at the Upper Waiakea FR population; and *Setaria palmifolia* (palm grass) at the Puu Makaala NAR population (HBMP 2008; N. Agarostos, pers. comm. 2007; PEP Program 2008, pp. 106-107).

Clidemia hirta is a noxious shrub first cultivated in Wahiawa on Oahu before 1941. This pest plant forms a dense understory, shading out native plants and hindering their regeneration, and is considered a serious plant threat (Wagner *et al*. 1985; Smith 1989). The most promising biological control to date for Koster's curse is the *Colleotrichum* fungus, *Gloesporioides* f. sp. *clidemiae*, released in 1986. Although there is no quantitative data available, it has an observable negative impact. Other agents tested were a moth (*Antiblemma acclinalis*), a leaf-feeding beetle (*Lius poseidon*), a fruit and flower-feeding insect *(Mompha trithalama),* and a terminal growth-feeding insect (*Liothrips urichi*), all with lesser control success than the fungus (Smith 1989).

Hedychium gardnerianum is native to India (Nagata 1999). This showy ginger was introduced for ornamental purposes, and was first collected in 1954 at Hawaii Volcanoes National Park (Wester 1992). Kahili ginger grows over 3.3 ft (1 m) tall in open light environments, preferring a warm moist climate; however, it will readily grow in full shade beneath a forest canopy (Smith 1985). It forms vast, dense colonies, displacing other plant species, and reproduces by stolons where already established. The conspicuous, fleshy, red seeds are dispersed by fruit-eating birds as well as man. Aircraft-based analysis has shown that ginger reduces the amount of nitrogen in the *Metrosideros* forest canopy in Hawaii, a finding subsequently corroborated by ground based sampling (Asner and Vitousek 2005). It may also block stream edges, altering water flow (Global Invasive Species Database 2006a). Kahili ginger can be controlled by herbicides, but biological control is considered the only practical approach for the long-term management of large infestations in native forests. The ability of the bacterium *Ralstonia (=Pseudomonas) solanacearum* to cause bacterial wilt in kahili ginger in the field, together with its lack of virulence in other ginger species, contributes to its potential as a biological control agent (Anderson and Gardner 1999; Anderson 2003).

Passiflora edulis is native to Brazil, and is cultivated for its fruit in Hawaii. It has escaped and naturalized in mesic forest and shrubland on all the main islands (Escobar 1999). It is a vigorous, climbing vine that clings by tendrils to almost any support and can grow 15 to 20 ft (5 to 6 m) per year once established. The aggressive vines can smother trees and shrubs. Each fruit has hundreds of seeds which are eaten and distributed by pigs (Pacific Island Ecosystems at Risk (PIER) 2006a).

Psidium cattleianum, a tree native to tropical America, has become widely naturalized on all the main islands of Hawaii. Found in mesic to wet forests, strawberry guava develops into dense stands in which few other plants can grow, displacing native vegetation. The fruit is eaten by pigs and birds, which then disperse the seeds throughout the forest (Smith 1985; Wagner *et al*. 1985). A biological control agent, *Tectococus ovatus*, has undergone 15 years of testing, and

there is a proposal to release this insect at Olaa Forest Reserve on the island of Hawaii (ScienceDaily 2008).

Rubus argutus is native to the central and eastern United States, and is a serious weed that naturalizes in a variety of disturbed habitats. It reproduces both vegetatively and by seed. *Rubus argutus* was introduced to Hawaii in the late 1800s and was quickly spread by birds (Wagner *et al*. 1999; Tunison 1991). This species grows via runners underground, and readily resprouts from them if above-ground tissue is treated with herbicide (U.S. Army 2006). Biological controls have been introduced (moths, sawfly, and beetle), but the damage to blackberry so far has been negligible (Nagata and Markin 1986).

Rubus ellipticus is native to India and widely grown as an ornamental in warm regions. This species has naturalized locally in the Volcano and Laupahoehoe areas of the island of Hawaii. It is a climbing shrub, covered with prickles and edible yellow fruit, and is readily dispersed by birds. This extremely thorny plant forms impenetrable thickets, threatening native ecosystems and the native Hawaiian raspberry species *R. hawaiensis* (Benton 2005; Global Invasive Species Database 2006b). *Rubus ellipticus* is included in the Hawaii State noxious weed list (Hawaii Administrative Rules Title 4, Subtitle 6, Chapter 68).

Rubus rosifolius is native to Asia and is common in Hawaii in disturbed mesic to wet forest on all of the main islands. It is a sparse shrub, covered with prickles, and has edible red fruit. It invades the understory, forming dense thickets and outcompetes native plant species. It easily reproduces from roots left in the ground, and seeds are spread by feral animals and birds. There is no specific management information for *R. rosifolius*, but techniques used for the control of blackberry *R. fruticosus*, a related species, may be applicable PIER 2006b; Global Invasive Species Database 2006c).

Setaria palmifolia is native to tropical Asia, and was first collected on Hawaii Island in 1903 (O'Connor 1999). A large-leafed perennial herb, this species attains about 6.5 ft (2 m) in height at maturity, shading out native vegetation. Palmgrass is resistant to fire and recovers quickly after being burned. Feral animals provide new areas for establishment by disturbing and opening areas in native vegetation (Cuddihy and Stone 1990). Chemical control methods are used currently, and no known biocontrol research is being conducted for this species (Motooka *et al.* 2003).

The original native flora of Hawaii consists of about 1,400 species, nearly 90 percent of which are endemic. Of the total native and naturalized Hawaiian flora of 1,817 taxa, 47 percent were introduced from other parts of the world, and nearly 100 species have become pests (Smith 1985; Wagner *et al*. 1999). Confirmed personal observations (HBMP 2008) and several studies (Cuddihy and Stone 1990; Wood and Perlman 1997; Robichaux *et al*. 1998, p. 4) indicate nonnative plant species may outcompete native plants similar to *Phyllostegia floribunda*. Competition may be for space, light, water, or nutrients, or there may be a chemical produced that inhibits growth of other plants (Smith 1985; Cuddihy and Stone 1990). In addition, nonnative pest plants found in habitat similar to that of this species have been shown to make the habitat less suitable for native species (Smathers and Gardner 1978; Smith 1985; Loope and Medeiros 1992; Medeiros *et al.* 1992; Ellshoff *et al.* 1995; Meyer and Florence 1996; Medeiros

et al. 1997; Loope *et al*. 2004). In particular, alien pest plant species degrade habitat by modifying availability of light, altering soil-water regimes, modifying nutrient cycling, or altering fire characteristics of native plant communities (Smith 1985; Cuddihy and Stone 1990; Vitousek *et al*. 1997). Currently, many widespread alien plant taxa cannot be completely eradicated from the island of Hawaii, and therefore are expected to continue dispersing into managed areas (Loope 1998; Smith 1985).

CONSERVATION MEASURES PLANNED OR IMPLEMENTED

The State has fenced a wild individual in the Kipahoehoe NAR and fenced populations (natural and augmented) exist within the Puu Makaala NAR and the Upper Waiakea FR. The U.S. Fish and Wildlife Service funded a pig exclusion fence and a rare plant reintroduction project within the historical range of *Phyllostegia floribunda* at the Nature Conservancy's Kona Hema Preserve in south Kona (Shallenberger 2005). These actions provide protection and habitat for *P. floribunda* and other endangered plant species proposed for reintroduction. The Park Service has fenced a wild population and is conducting alien plant control (L. Pratt, pers. comm. 2007). This species is represented in ex situ collections at Lyon Arboretum's Seed Storage Facility, the Volcano Rare Plant Facility (VRPF), and at Hawaii Volcanoes National Park (Service 2005; VRPF 2008; Lyon Arboretum Seed Bank 2008).

SUMMARY OF THREATS

Based on our evaluation of habitat degradation and loss by feral pigs and competition with nonnative plants, we conclude there is sufficient information to develop a proposed rule for this species due to the present and threatened destruction, modification, or curtailment of its habitat and range, and the displacement of individuals of *Phyllostegia floribunda* due to competition with nonnative plants for space, nutrients, water, air, and light. In addition, predation by feral pigs is a potential threat to this species. We find that this species is warranted for listing throughout all its range, and, therefore, find that it is unnecessary to analyze whether it is threatened or endangered in a significant portion of its range.

RECOMMENDED CONSERVATION MEASURES

- Protect all individuals from feral pigs
- Control alien plants
- Conduct/update field surveys at known locations and in suitable habitat
- Propagate and maintain genetic stock

LISTING PRIORITY

THREAT			
Magnitude	Immediacy	Taxonomy	Priority
High	Imminent	Monotypic genus	1
		Species	2
		Subspecies/population	3
	Non-imminent	Monotypic genus	4
		Species	5
		Subspecies/population	6
Moderate to Low	**Imminent**	Monotypic genus	7
		Species	**8***
		Subspecies/population	9
	Non-imminent	Monotypic genus	10
		Species	11
		Subspecies/population	12

Rationale for listing priority number:

Magnitude:
This species is highly threatened by feral pigs that may directly prey upon it and degrade and destroy habitat, and by nonnative plants that compete for light, space, and nutrients. The unmanaged populations in the Upper Waiakea and Olaa FRs are still impacted by these threats. However, all of the remaining known individuals are fenced for protection from feral pigs and are being managed to control invasive plant species to varying degrees. Therefore, while the magnitude of threats is high for the unmanaged populations, it is moderate to low for the remaining populations, made up of both wild and outplanted individuals and numbering over 200 individuals.

Immediacy of Threats:
Threats to *Phyllostegia floribunda* include habitat degradation by feral pigs and competition by nonnative plants, and are considered imminent because they are ongoing. Predation by feral pigs is a potential threat to unmanaged populations.

Yes Have you promptly reviewed all of the information received regarding the species for the purpose of determining whether emergency listing is needed?

Is Emergency Listing Warranted? No. The species does not appear to be appropriate for emergency listing at this time because the immediacy of the threats is not so great as to imperil a significant proportion of the taxon within the time frame of the routine listing process. In addition, the Service has funded conservation actions that will benefit individuals of *Phyllostegia floribunda*, such as restoration of forest habitat and eradication of nonnative plant species in areas where it occurs. The Park Service maintains a fenced area with weed control and

outplanting for this species. If it becomes apparent that the routine listing process is not sufficient to prevent large losses that may result in this species' extinction, then the emergency rule process for this species will be initiated. We will continue to monitor the status of *P. floribunda* as new information becomes available. This review will determine if a change in status is warranted, including the need to make prompt use of emergency listing procedures.

DESCRIPTION OF MONITORING

Much of the information on this form is based on the results of a meeting of 20 botanical experts held by the Center for Plant Conservation in December of 1995, and was updated by personal communication with Linda Pratt of the U.S.G.S. Biological Resources Discipline in 1999. We have incorporated additional information on this species from our files. In 2006, we received no new information on this taxon. New status information was provided in 2007 by Nick Agorastos and Lyman Perry (Hawaii Division of Forestry and Wildlife), Patty Moriyasu (Volcano Rare Plant Facility) and Linda Pratt (U.S.G.S. Biological Resources Discipline), and was incorporated into this assessment. In 2008, new information was provided by Linda Pratt, Jon Giffin (TNC), and Kealii Bio, Plant Extinction Prevention Program. In 2009 we received no new information. In 2010, we contacted the species experts listed below, and received new information from Nick Agorastos, DOFAW.

List all experts contacted:

Name	Date	Affiliation
Agorastos, Nick	02/09/10	Division of Forestry and Wildlife
Anderson, Stephen	02/09/10	National Park Service, Haleakala NP, Maui
Aruch, Sam	02/09/10	private contractor
Bakutis, Ane	02/09/10	Plant Extinction Prevention Program, Molokai
Ball, Donna	02/09/10	U.S. FWS, Partners Program, Hawaii Island
Beavers, Sally	02/09/10	National Park Service, Hawaii Island
Bily, Pat	02/09/10	The Nature Conservancy, Maui
Bio, Kealii	02/09/10	Plant Extinction Prevention Program, Hawaii Island
Brosius, Chris	02/09/10	West Maui Mountains Watershed Partnership
Caraway, Vickie	02/09/10	Hawaii Division of Forestry and Wildlife, Oahu
Ching, Susan	02/09/10	Plant Extinction Prevention Program, Oahu
Cole, Colleen	02/09/10	Three Mountain Alliance
Conry, Paul	02/09/10	Hawaii Department of Land and Natural Resources
Coordinator	02/09/10	East Maui Watershed Partnership
Duvall, Fern	02/09/10	Hawaii Division of Forestry and Wildlife, Maui
Fay, Kerri	02/09/10	The Nature Conservancy, Maui
Garnett, Bill	02/09/10	National Park Service, Kalaupapa, Molokai
Giffin, Jon	02/09/10	The Nature Conservancy, Hawaii Island
Haus, Bill	02/09/10	National Park Service, Haleakala NP, Maui
Higashino, Jennifer	02/09/10	U.S. FWS, Maui
Imada, Clyde	02/09/10	Bishop Museum
Jacobi, Jim	02/09/10	U.S.G.S., Biological Resources Division
Kawakami, Galen	02/09/10	Division of Forestry and Wildlife, Kauai
Kawelo, Kapua	02/09/10	U.S. Army, Environmental Division

Kier, Matt	02/09/10	U.S. Army, Environmental Division
Kiyabu, Brian	02/09/10	Amy Greenwell Botanical Garden
Kraus, Jim	02/09/10	U.S. FWS, Hakalau NWR
Medeiros, Arthur	02/09/10	U.S. Geological Survey
Misaki, Ed	02/09/10	The Nature Conservancy, Molokai
Moriyasu, Patty	02/09/10	Volcano Rare Plant Facility, Hawaii Island
Moses, Wailana	02/09/10	The Nature Conservancy, Molokai
Nakai, Glynnis	02/09/10	U.S. FWS, Refuges, Maui
Oppenheimer, Hank	02/09/10	Plant Extinction Prevention Program, Maui Nui
Palomino, Anna	02/09/10	Olinda Rare Plant Nursery, Maui
Palumbo, David	02/09/10	National Park Service, Haleakala NP, Maui
Pepi, Vanessa	02/09/10	U.S. Navy, Environmental Contractor
Perlman, Steve	02/09/10	National Tropical Botanical Garden
Perry, Lyman	02/09/10	Division of Forestry and Wildlife, Hawaii Island
Plunkett, Bryan	02/09/10	Lanai Forest and Watershed Partnership
Pratt, Linda	02/09/10	U.S.G.S., Biological Resources Division
Purell, Melora	02/09/10	Kohala Watershed Partnership
Seidman, Stephanie	02/09/10	Maui Nui Botanical Garden
Shishido, Glenn	02/09/10	Division of Forestry and Wildlife, Maui
Silbernagle, Mike	02/09/10	U.S. FWS, Refuges, Oahu
Smith, Miranda	02/09/10	Koolau Mountains Watershed Partnership
Starr, Forest	02/09/10	U.S. Geological Survey
Tanaka, Daniel	02/09/10	Puu Kukui Watershed Preserve
Ward, Joe	02/09/10	Puu Kukui Watershed Preserve
Welton, Patti	02/09/10	National Park Service, Haleakala NP, Maui
Wood, Ken	02/09/10	National Tropical Botanical Garden
Wysong, Michael	02/09/10	DLNR Natural Area Reserves, Kauai

The Hawaii Biodiversity and Mapping Program identified this species as critically imperiled (HBMP 2006). Based on the International Union for Conservation of Nature and Natural Resources Red List of Threatened Species, this species is recognized as Endangered (facing a very high risk of extinction in the wild) (Bruegmann and Caraway 2003). *Phyllostegia floribunda* is included in the list of species in Hawaii's 2005 Comprehensive Wildlife Conservation Strategy (Mitchell *et al*. 2005).

COORDINATION WITH STATES

On February 11, 2010, we provided the Hawaii Division of Forestry and Wildlife with copies of our most recent candidate assessments for their review and comment. No additional information or comments were received.

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APPROVAL/CONCURRENCE: Lead Regions must obtain written concurrence from all other Regions within the range of the species before recommending changes, including elevations or removals from candidate status and listing priority changes; the Regional Director must approve all such recommendations. The Director must concur on all resubmitted 12-month petition findings, additions or removal of species from candidate status, and listing priority changes.

Approve:

Acting Carolyn A. Bohan
Regional Director, Region 1, Fish and Wildlife Service — 5/18/10 Date

Rowan W Gould
ACTING
Director, Fish and Wildlife Service — October 22, 2010

Concur:

Do not concur: _____ Date: _____
Director, Fish and Wildlife Service

Director's Remarks:

Date of annual review: Date: April 21, 2010
Conducted by: Cheryl Phillipson, Pacific Islands FWO
Biologist, Prelisting and Listing Program

Comments:

PIFWO Review

Reviewed by: Christa Russell Date: April 26, 2010
Prelisting and Listing Program Coordinator

Marilet Zablan Date: April 26, 2010
Assistant Field Supervisor, Endangered Species Division

Gina Shultz Date: April 30, 2010
Acting Field Supervisor